

### **Abstract**

Wireless devices use protruding antennas for transmitting and receiving data signals. These protruding antennas govern the size and dimensions of these wireless devices. Perpetual reduction in the size of these wireless devices has resulted in an increasing need and desire to eliminate the protruding antennas. An embodiment of the invention describes a plurality of pillar structures for inter-coupling and spatially displacing one or more semiconductor chips from a substrate to realise a stacked antenna configuration for space and footprint reduction. The good structural integrity of the plurality of pillars also provides mechanically robust electrical interconnections between circuits and antenna patterns formed on the substrate or in the semiconductor chip.

Figure 3